



CULTURAL RESOURCES SURVEY

FOR

GEOTHERMAL LEASING

DYKE HOT SPRINGS AREA

U. S. Department of the Interior
Bureau of Land Management

WINNEMUCCA DISTRICT OFFICE
PARADISE-DENIO RESOURCE AREA
DENIO PLANNING UNIT

Supplement to
EAR No. N-11821

(This report contains sensitive data and
should be distributed on a "need to know" basis.)

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Dates of Field Ops: May 11-14, 24-28, June 2-4, 8-11, 14-18, 21-25, 1976.

Archaeologists: Nancy Botti, Steve James

Assistant: Tom Pagnano

Project: Geothermal Lease Applications

N-10307	Thermal Resources
N-10308	Thermal Resources
N-10309	Earth Power
N-10310	Earth Power
N-11016	E.B. Towne

District Office: Winnemucca

Resource Area: Paradise - Denio

Planning Unit: Denio

State: Nevada

County: Humboldt

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Legal Description: (See Figure 1)

N-10307	<u>T. 42N., R. 30 E.,</u> Section 11 (unsurveyed)
N-10308	<u>T. 43 N., R. 30 E.,</u> Section 26 (unsurveyed) <u>T. 42 N., R. 30 E.,</u> Section 1 (unsurveyed)
N-10309	<u>T. 43 N., R. 30 E.,</u> Section 25 N $\frac{1}{2}$, SW $\frac{1}{4}$, S $\frac{1}{2}$ SE $\frac{1}{4}$, NW $\frac{1}{4}$ SE $\frac{1}{4}$, Section 35 (unsurveyed) <u>T. 42 N., R. 30 E.,</u> Section 12 (unsurveyed) <u>T. 42 N., R. 31 E.,</u> Section 6 (unsurveyed) Lots 3, 4, 5, SE $\frac{1}{4}$ NW $\frac{1}{4}$, S $\frac{1}{2}$, NE $\frac{1}{4}$
N-10310	<u>T. 42 N., R. 30 E.,</u> Section 2 (unsurveyed) <u>T. 42 N., R. 31 E.,</u> Section 7 (unsurveyed)
N-11016	<u>T. 43 N., R. 30 E.,</u> Section 12 E $\frac{1}{2}$, E $\frac{1}{2}$ SW $\frac{1}{4}$, E $\frac{1}{2}$ NW $\frac{1}{4}$ Section 13 E $\frac{1}{2}$, N $\frac{1}{2}$ NW $\frac{1}{4}$, S $\frac{1}{2}$ SW $\frac{1}{4}$ Section 24 E $\frac{1}{2}$, SW $\frac{1}{4}$, S $\frac{1}{2}$ NW $\frac{1}{4}$

Map References: U.S.G.S. Duffer Peak, Nevada 15' 1965; A.M.S. Vya, Nevada 1:250,000 1954, revised 1970; and BLM Denio Planning Unit map.

Existing Data Review and Consultation: See Bibliography.

Archaeological Background: The project area lies at the northeast arm of the Black Rock Desert, part of the Pleistocene Lake Lahontan Basin system, which offers a good situation for the study of prehistorical resources. Beach terraces are significant because of the potential utilization of water and game resources which the lake shores provided for prehistoric man. One might expect the occurrence of lithic scatters, since siliceous volcanic rocks present in the area were desired and used to fashion stone materials. Any live water source, including hot springs, cold springs, streams, etc., is a potential location for aboriginal populations. These sources are numerous throughout the flanks of the Pine Forest Range.

Little is known about the archaeological resources of the Black Rock Desert. In the immediate project area, an archaeological site at Dyke Hot Springs had been previously recorded during a survey by Eugene Hattori in 1972; we used his data to begin our assessment of that site. It appears that no other published archaeological work has been done in the specific area covered in the project. Further south in the Black Rock, in a portion of the desert north of Sulphur, the University of California, Berkeley, conducted a limited archaeological survey on a number of sites in 1966. It became apparent through this surface survey that a wide range of typologically early artifacts were to be found in this area of northwestern Nevada (Clewlow: 1968). A recent survey of the known Geothermal Resource Area in the vicinity of Gerlach also recorded potentially early manifestations of man in the Black Rock as well as a range of projectile point types which suggested a relatively long-term occupation of the area (Botti: 1975). Extensive survey and excavations were done in 1971-72 near Trego Hot Springs. Here a stratified site (26Pe118) yielded house floors, from which radiocarbon dates were obtained, along with a great deal of bone, shell beads, and debitage. Laboratory work, analysis, and a final report are in progress (Rusco and Toney: n.d.; Rusco: personal communication). Background information for the northwestern Great Basin as a whole, also used for comparative purposes, is included in the Bibliography.

Historical Background:

It would seem that the history of this particular area has been forgotten or ignored by modern historians, as a literature search of the main historical sources -- Browne (1972), Paher (1970), Mordy and McCaughey (1968), Willden (1964), Lincoln (1923), and Ransome (1909) -- revealed little about the town of Dyke, its surrounding mines, and the general vicinity. Two books, Davis (1913) and Nevada "The Silver State" (1970) did make reference to the Dyke area. Newspaper accounts in the Humboldt Star, Silver State, and Goldfield News yielded accounts of the strikes at Dyke. Some mining claims information was provided by the Humboldt

County Assessors Office. One informant, Harold Woodward, a longtime resident and rancher, was extremely helpful and the only major source of information on the area. From these and a few additional sources, a sketchy history of the area has been written.

Northwest Humboldt County was first explored by the Hudson's Bay Company under Peter S. Ogden. The 1828 expedition probably passed east of the Dyke area while exploring the Quinn River (Mordy & McCaughey 1968:vi,94). During 1865 and 1866, Indian battles were being fought in the Black Rock Desert, and the last of these was reportedly fought in Fish Creek Valley, approximately 20 miles southwest of the Dyke area (Wheeler 1971:85). The settling of the upper portion of the Black Rock Desert by cattlemen and miners occurred in the 1860's and 70's. About fifteen miles southwest of Dyke, near Bartlett Creek, the mining camp of Varyville (or Columbia) developed in the 1870's. The Columbia mining district was created in 1875, but by the 1880's the district was forgotten except for a short revival during the Depression by the Leonard Creek Placers, Ltd. (Paher 1970: 148). Part of the cattle empire of Miller and Lux was located in the Dyke area until they ceased operations around 1925 (Harold Woodward). One of the first ranches to be acquired in the area was at Quinn River Crossing, 7 miles east of Dyke. In 1905, Allen C. Bragg visited Quinn River Crossing on his trip around Humboldt County. He reported that Miller and Lux owned 10 ranches, all in Humboldt County, and were the biggest cattle raisers in the country (Bragg 1976: 39,40).

The town or mining camp of Dyke probably came into existence in the middle of 1906 with a strike in the vicinity, but the Sunday, July 29, 1906, issue of The Daily Silver State (Winnemucca) reported that the strike was not a new one, although the "unfavorable locality" had not lent itself to much development until that time. "A townsite has been laid out at the scene and has been named Dyke." The original locator of Dyke was A. W. Ellis (Silver State, August 6, 1906) from Sumpter, Oregon, from which the main rush occurred. Other newspaper articles even as far away as Goldfield (see Bibliography), reported on the strikes, claims, and mining deals at Dyke and in the vicinity. Dyke seems to have been a prosperous mining camp: gold, silver, lead, and copper were all mined in the area. Dyke has a stage route that ran from Quinn River Crossing to Dyke. George Reer had a saloon, as did A. D. Johnson and B. V. Hurst; a man named McQuain ran a little store at the town site. One Humboldt Star article for June 11, 1907, told about the sale of one group of claims on Pass Creek in the Dyke

District for \$100,000 to the Quinn River Mining Company. Harold Woodward, a rancher who has lived 1½ miles north of Dyke since 1919, states that at one time Dyke had a population of 200 people (Nevada, The Silver State, 1970: 444). Icyl Tingley, a Winnemucca historian, was also given that figure from Jack Murdock, an old buckaroo in the area.

The town of Dyke could have gotten its name in two ways. A newspaper account mentioned that "Dyke porphyry belt" as the area of increased strikes (Humboldt Star, May 5, 1907); the town could have been named for this "dyke." On the other hand, Dyke might be named for Andy "Dyke" Johnson, an early claimant in the area, owner of a saloon in town, who was buried there in 1923 by Harold Woodward. Mr. Woodward mentioned in Nevada, The Silver State that the town was named for "Dyke" Johnson and gave us the same information. Bishop Peak and Bishop Canyon, north of Dyke, were probably named after Guy Bishop, another early miner. The mining claims records of the area near Dyke for the early 1900's refer to Miller and Lux Hot Springs (Mining Claim Book P, pg. 370). This may have been the original name and owners of the spring before it became known as Dyke Hot Springs.

According to Mr. Woodward, Dyke Johnson built a rock house in Dyke Canyon after he built the saloon at the crossroads in Dyke. The rock house still stands, but after Dyke's death in the winter of 1923, his saloon was soon torn down, as was what remained of the camp, and the materials were used elsewhere. The camp of Dyke was abandoned at this point. The 1930's brought renewed activity to Dyke. Bootlegging took place at the rock house in Dyke Canyon. Mining activity again took place as it does anytime the price of the ore becomes profitable to mine. The Tiller brothers, who now operate a supermarket in Burns, Oregon, began mining operations in the middle 1930's up until World War II. They drilled an 800-foot tunnel at the Ellen Bee Mine and erected half a dozen wooden building and a rod mill between the former camp of Dyke and the hot springs. Mr. Woodward later bought the wooden buildings and dismantled them for the lumber.

Today, not much remains at Dyke except rusted cans, bottles, a few dismantled autos, a rock-lined well that represents Dyke's Saloon, and the evidence of a few sod houses (see CrNV-02-295b for more details and a map). Some mining activity is still being carried on in Dyke Canyon by Jack Doyle of Roseburg, Oregon.

Aside from Dyke, Mr. Woodward supplied information on other features of historic significance in the area. In the canyon through which Cherry Creek flows, southwest of Dyke, two weathered cabins and a sod

house remain standing. Ian Brahler built the lower cabin sometime in the 1920's and worked a copper claim in the area until the late 1940's. The upper cabin was built by John Murray at about the same time, apparently to resolve ownership differences.

Other structures remain in the Dyke area. Across from the Upper Woodward Ranch stands an adobe hut, built by the son-in-law of a Mexican named Martinez, who homesteaded what is now the upper ranch and built a four room adobe house around 1912. Later, an uncle of Woodward's bought it, and the original house was torn down by Woodward, leaving only the hut. Another structure on the Woodward property is a cellar house built by a Basque sheepherder in 1922, although it was not part of the original homestead. Woodward's main ranch (the lower ranch) also has a great deal of history connected with it. The 80 acres was purchased in 1919 from a doctor by Woodward's father, a conductor on the Western Pacific RR. The first five rooms were completed in 1926. The ranch had its own school at that time which went up to the 8th grade, and there have been a few school houses at the ranch, the last of which was built in 1937, used until the 1950's, and stands today.

The history of the mining area of Dyke is typical of other mining areas in Nevada, contributing as an integral part to the history of the area while functioning as a microhistory of Humboldt County.

Area and Environmental Setting: (See Figure 1) The project area is located approximately 30 miles south of Denio, Nevada, via SR 140, and approximately 12 miles west of the highway via dirt road to the Woodward Ranch. It lies at the southeast end of the Pine Forest Range, due east and slightly northeast of Sentinel Peak, northeast of The Mesa. The northern arm of the Black Rock Desert extends into the project area and its primary drainage, the Quinn River, flows to the east and south. Three landscapes comprise the area: the alluvial flats of the Black Rock Desert which constitute the valley floor, the piedmont slopes of the Pine Forest Range, and the mountains. The valley is bordered by mountain ranges composed principally of granodiorite, sedimentary and volcanic rocks. The mountains were uplifted through faulting in the latter Tertiary. Material has eroded from the uplands to fill the basin with alluvium. The Pine Forest Valley differs from the typical valley of the Great Basin in that it is not closed and has no playa. Run-off from the valley discharges into the Quinn River, which in turn flows southward to the playas of the Black Rock Desert where it evaporates. Geology: Along the west side of the valley, the Pine Forest Range rises abruptly above the valley floor. This range is composed of porphyritic basalt, water-laid and airfall tuff, andesite, limestone, marble, chert, phyllite, and volcanoclastic sedimentary rock. Piedmont

slopes consist of coalescing alluvial fans that form a continuous apron around the mountain ranges and merge almost imperceptibly into the valley floor. Slopes range in width of about $\frac{1}{2}$ mile to 1 mile. Valley floor is the relatively flat area downslope from the alluvial fan. It is comprised of alkalai flats, large dry washes, sporadic smaller washes, and sand dunes. Soil: The mountains are characterized by steep slopes with extensive outcrops and "ribbons" of basalt and schist. The piedmont slopes are composed of alluvial fan deposits, ranging from silt to boulders. Valley fill is composed of rock debris which has been eroded from the surrounding mountains. In several areas are beach, bar, and spit deposits, composed of pebbles and sand with some clay and tufa. Most of the remainder of the valley floor are lake beds, composed of clay, silt, fine sand and a little gravel. Vegetation: There are several zones of vegetation in the area. The dry washes and alkalai flats are, for the most part, barren. The valley floor is dominated by phreatophytes, including greasewood (Sarcobatus vermiculatus), salt grass (Distichlis stricta), rabbitbrush (Chrysothamnus nauseosus), horsebrush (Tetradymia spp.), ryegrass (Elymus cinereus), and pickleweed (Alburolefa occidentalis). In addition, several salt-tolerant shrubs are found, including shadscale (Atriplex confertifolia), and spiny hopsage (Grayia spinosa). The sand dune areas exhibit nearly the full range of the above vegetation while the flats have a cover of mainly greasewood, spiny hopsage, and shadscale. Cover ranges from 5% to 30%. On the lower piedmont slopes, just above the sand dunes, the vegetation is dominantly shadscale (Atriplex confertifolia) with some greasewood, spiny hopsage, bigsage (Artemisia tridentata), rabbitbrush, and horsebrush. Cover ranges from 30% to 60%. The area above this shadscale zone, on the upper piedmont slopes and the mountains, becomes Northern Desert Shrub community with bigsage, spiny hopsage, shadscale, rabbitbrush, horsebrush, cheatgrass, and occasional greasewood. Cover ranges from 5% to 30%. Areas in the highest elevations may also exhibit Mormon tea (Ephedra nevadensis), gooseberry (Ribes spp.), skeletonweed, lupine (Lupinus spp.), and buckwheat (Erigonum spp.). The area at the unnamed spring is primarily saltgrass (Distichlis stricta). The area in the vicinity of Dyke Canyon has Russian thistle (Salsola kali), skeletonweed, skunk cabbage, rabbitbrush, woods-rose (Rosa woodsii), and cottonwoods. Dyke Hot Springs has unidentified reeds and native (possibly subirrigated) grasses. Fauna: Rattlesnakes, gopher snakes, coyotes, badgers, jackrabbits, cottontails, grasshoppers, lizards, frogs, livestock, and numerous birds were seen in the area.

Water: Springs and seeps are common in the surrounding mountains and occur in places where the water table intersects the land surface, commonly at the heads of canyons, and are the source of many of the small streams which drain the mountains. These canyons include the unnamed canyon through which Pole Creek runs, Murray Canyon, Buckaroo Canyon,

Bishop Canyon, Dyke Canyon, the unnamed canyon containing Cherry Creek, and an unnamed canyon through which water runs to an unnamed spring south of Cherry Creek, all in the project area. In addition, at least one hot spring exists in the project area, issuing from the alluvium of the valley floor, probably associated with the fault zone. Most of the water discharged by springs is either lost by evaporation and transpiration near the spring sites or along the stream channel. Only a small part persists as streamflow. Many of the streams are ephemeral, carrying water mostly during and after storms, with some carrying water for a few months during the winter and spring. The canyons along the east side of the Pine Forest Range broaden into alluvial basins in their upper reaches. These streams are fed by seepage from the mantle of alluvium which acts as a regulator, absorbing water from snowmelt and rain and discharging it into the canyons as seeps and springs. Several stream channels are incised in the valley floor, and water is negligible except during periods of high run-off. The major streams have probably followed their present course throughout the history of the valley; stream laid deposits of sand and gravel may be present at various depths within the valley fill. The Quinn River to the southeast has probably occupied its present course, perhaps intermittently, since late Tertiary, implying the formation of lakes behind the temporary barriers and alternated drowning and rejuvenation of the river.

The climactic fluctuations of the Pleistocene epoch resulted in a series of lakes which intermittently covered a large part of western Nevada. The most recent of these, Lake Lahontan, attained a maximum depth of about 350 feet in the Pine Forest Valley. The present valley is underlain by lake sediments and represents the configuration of the lake bottom. Many stages and fluctuations of Lake Lahontan are recorded in these sediments and in the shoreline features, such as beaches and spits, which terrace the surrounding hillsides to an elevation of roughly 4380', the highest level of the lake. The processes of erosion and deposition have resulted in only minor changes since the last withdrawal of Lake Lahontan.

Climate of the Pine Forest Valley ranges from arid to semiarid. Precipitation and humidity are low; evaporation is high. Precipitation is irregular in distribution but is generally least on the valley floor and greatest on the highest part of the mountains. Average annual precipitation is 5.6 inches. Most of this occurs in the winter as snow. Summers are notably dry. Evaporation rate is estimated to be 4 feet per year, about 8 times the precipitation. Ground water is discharged from the valley by evaporation, transpiration, springs, pumping, and underflow from the south end of the valley to the Black Rock Desert. Transpiration accounts for most of the discharge, and is accomplished mainly by phreatophytes. A small amount of the discharge by the largest thermal springs may be returned as ground water. An estimated 2½ million gallons a day is discharged to the Black Rock Desert.

Management and Research Objectives: The main objective of this project was to locate possible National Register properties of significant quality and large aerial extent (10 acres or more in size) which could be adversely affected by proposed geothermal leasing. It was felt that those cultural properties of less than 10 acres, even if of National Register quality, could be mitigated under existing lease stipulations. The scope of the project included the location of both historical and prehistorical (cultural) properties, the assessment of their importance, and proposing mitigating measures to insure their protection. In locating prehistoric values, our major concern was the identification of large sites of National Register quality; additionally, smaller sites and isolated finds which could give us information valuable in solving larger problems of human usage were also recorded. In locating historical values, we were concerned with identifying actual stations and buildings, etc., and physical remnants and/or ground evidence of historic trails. A sampling procedure biased toward potential geothermal development areas was utilized in the field to accomplish these goals. Field techniques will be further explained below. This project, then, does not constitute an intensive survey, nor does it relieve the lessee of his obligations, but it is designed to protect the BLM from leasing National Register quality properties for oil and gas and/or geothermal development that could not be adequately protected after leasing.

Class 1 Inventory indicated a lack of knowledge of the status of cultural resources in the project area. Class I Inventory did however, point out that archaeological values do occur in the Black Rock Desert area (Clewlow: 1968; Rusco and Toney, n.d.; Botti: 1975). This information, along with presumed knowledge of Great Basin settlement patterns, led to the assumption that archaeological values would also be found in the project area. Implications for management and research inventory purposes would include the establishment of an archaeological data base for the area and contribution toward solving problems of human usage and occupation in the Great Basin. At the same time, data will be gathered independent of any problem-oriented research and, as such, may be potentially more applicable to subsequent research. Through studying the particular area of the Black Rock Desert in the Pine Forest Valley, we would hope to answer some of the questions raised by Clewlow and Botti in the previous surveys of the Black Rock. What is the range of projectile point types in this particular area and what does this range suggest about the date of entry of man into the region and the length of his occupation? What other types of artifacts occur in the area and what do they suggest about the types of sites and extent of utilization? How does the extent of utilization compare with climatological factors? What types of exploitation of resources occur?

Did they rely on both arid and lacustrine adaptation patterns? Where do the sites occur - in the valley flat, on alluvial fans, or in the mountainous regions? Are these sites near extinct, continuing, or present ground water? What is the correlation between location of these sites and their time constraints? Do there appear to be microenvironments which may reflect subsistence changes and variations, resulting in differing responses to the environmental potential? Inventory information on the Black Rock Desert area sequence and adaptation patterns may help to answer these questions.

Field Examination Techniques: As stated in the Research Objectives, the survey was non-intensive and the sampling procedure utilized was biased toward potential geothermal development areas. Sections 12, 13, 24, and 25, T. 43 N., R. 30 E.; Sections 1 (S-SE portion) and 12, T. 42 N., R. 30 E.; and Sections 6 and 7, T. 42 N., R. 31 E. were surveyed through systematic walk-over transects spaced no more than 200 meters apart. Areas of high elevation and steep slope, Sections 26 and 35, T. 43 N., R. 30 E.; and Sections 1 (N-NW portion), 2, and 11, T. 42 N., R. 30 E. were randomly checked in high probability areas and spot-checked in low probability areas, as access is limited and geothermal development is not anticipated for these areas. Investigation of high probability archaeological areas included prominent bluffs and/or high spots; meadow clearings; washes; sand dunes; stream channels and banks; and vegetation areas including hot springs, ephemeral streams, and other springs, as Great Basin surveys have shown these situations often have associated cultural materials. When archaeological and/or historical materials were observed, they became the focus of a wider and more intensive search to define site parameters. Areas of high concentrations of material were intensively surveyed through walk-over transects spaced no more than 50 meters apart. Formal subsurface tests were not made but cut-banks, animal burrows, etc., were closely checked for indications of subsurface cultural materials. Should sites be located after leasing, it is anticipated that effects can be mitigated under lease stipulations.

General field techniques included use of U.S.G.S. topographic maps for general on-the-ground orientation. Compasses were used for general locations and directions. Known section corners, man-made features of relative permanence and notable natural landmarks were also utilized for field orientation. Aerial photographs were used to locate vegetation areas, possible old roads and trails, contemporary roads, and in general orientation.

Isolated finds and "small sites" (defined as, usually no more than 20 cultural items found over an area of topographical and vegetational sameness and restricted to present ground surface) were collected and recorded; these properties are not National Register eligible. Other

larger sites of possible National Register quality were recorded but not collected (with the exception of especial and/or diagnostic artifacts on the premise that they might never be located again due to soil displacement and/or unauthorized collection). All sites located were recorded on Nevada State Museum/BLM forms along with maps and photographs. The site forms are on file at the Winnemucca District Office and the Nevada State Museum.

A section-by-section breakdown is given in the "Findings" section.

Findings: (See Figure 2)

*Sections unsurveyed - projection of boundaries.

T. 43 N., R. 30 E. (See Figure 3)

Section 12: Lease Application N-11016

Historical: Negative

Prehistorical: Positive

CrNV-02-248 (NSM 26Hu781) is a lithic scatter located in the flats north of the dirt road to the Woodward Ranch, in an area characterized by dry stream washes. Obsidian and chert flakes were observed; 1 chert scraper, 2 obsidian projectile point bases (1 Pinto? 1 Elko?), 1 obsidian projectile point tip, and 2 obsidian projectile point fragments were collected.

CrNV-02-249 (NSM 26Hu782) is an isolated find located in the alkali flat west of Big Creek and south of the Woodward Ranch road. One obsidian flake was collected.

CrNV-02-250 (NSM 26Hu783) is an isolated find located in the alkali flat east of Big Creek and south of the Woodward Ranch road. One basalt flake was collected.

CrNV-02-251 (NSM 26Hu784) is an isolated find located in a dry alluvial wash in the flats, east of Big Creek and south of the Woodward Ranch road. One chert flake was collected.

CrNV-02-252 (NSM 26Hu785) is a small site located in a dry alluvial wash area in the flats, east of Big Creek and south of the Woodward Ranch road. One obsidian projectile point tip and 14 obsidian flakes were found within 4M. square area. All materials were collected.

Section 13: Lease Application N-11016

Historical: Negative.

Prehistorical: Positive.

CrNV-02-253 (NSM 26Hu786) is a small site located in the alkali flat, west of Big Creek. One obsidian flake and 1 obsidian drill base were found together. The drill base may possibly have a basal "flute" formed by a series of pressure flakes. The obsidian flake may be modified for use as a scraper. Both materials were collected.

Section 24: Lease Application N-11016

Historical: Negative.

Prehistorical: Positive.

CrNV-02-254 (NSM 26Hu787) is an isolated find located in the alkali wash in the flats, east of Big Creek and south of the dirt road from the lower Woodward Ranch. One obsidian flake was collected.

CrNV-02-255 (NSM 26Hu788) is a small site located in an alkali wash at the base of a sand dune just east of the Woodward Ranch fenceline. One obsidian scraper and 11 obsidian flakes were found within a 5 M. square area. All materials were collected.

CrNV-02-266 (NSM 26Hu793) is a small site located in a dry alkali wash southeast of the lower Woodward Ranch west of Big Creek. One obsidian projectile point (Pinto?) and 1 obsidian flake were collected.

CrNV-02-270 (NSM 26Hu795) is an extensive lithic scatter which may have functioned as a chipping station and occupational site. Located over an area of low sand dunes and associated dry washes, and bounded by Big Creek on the east side. Three areas of concentration were designated as localities within the site. Projectile points, obsidian and chert flakes, and possible ground stone were observed. Diagnostic projectile points and 1 piece ground stone were collected. Site also extends into Section 25.

CrNV-02-271 (NSM 26Hu796) is a small site located at the side of an alkali wash in the flats east of Big Creek. One obsidian projectile point (Pinto?) and 1 obsidian flake were collected within a 1 M. square area.

CrNV-02-272 (NSM 26Hu797) is a small site located on the lower alluvial fan, east of the dirt road from the Woodward Ranch to Dyke Hot Springs. Six small obsidian flakes were collected.

CrNV-02-273 (NSM 26Hu798) is an isolated find located on the lower alluvial fan west of the dirt road from the Woodward Ranch to Dyke Hot Springs. One obsidian flake was collected.

CrNV-02-274 (NSM 26Hu799) is an isolated find located on the lower alluvial fan east of the dirt road from the Woodward Ranch to Dyke Hot Springs. One obsidian flake was collected.

CrNV-02-276 (NSM 26Hu801) is an isolated find located on sandy embankment above a dry wash, east of the dirt road from the Woodward Ranch to Dyke Hot Springs. One possible exhausted obsidian core was collected.

Section 25: Lease Application N-10309

Historical: Positive.

CrNV-02-295b (NSM 26Hu804) is a historic mining camp located southeast of the Woodward Ranch, on the east side of the road to Dyke Hot Springs where this road intersects with the road running out of Dyke Canyon, past the graves, to the site of Dyke and on east. The main area consists of broken bottles, rusted cans, a rock-lined well, and the remnants of the sod house of Dyke Johnson, after whom the town may have been named. Further west lie the graves of Dyke Johnson and "Shorty Blue" Matthew Price, a nationally known jockey. Throughout the rest of the site area lie additional sod structures, several dismantled cars and can dumps, rock rings (tent foundations?) and associated rock pits (outhouses?), and the remains of an old rod mill. Mines are located in Dyke Canyon, as are the remains of two stone buildings. See site report for further details. An archaeological component of this site, CrNV-02-295a, exists in the same area.

Prehistorical: Positive.

CrNV-02-256 (NSM 26Hu789) is a small site located on the lower alluvial fan near the base of Dyke Canyon, extending south of the graves. Materials found for a distance of about 2/10 mile south of the graves. One possible chert scraper, 1 basalt flake, 2 chert flakes, and 3 obsidian flakes were found within a 2/10 mile area along consistent elevation contour. All materials were collected.

CrNV-02-263 (NSM 26Hu790) is an isolated find located on the lower alluvial fan above the alkali flat, east of the road to Dyke Hot Springs, and north of the town site of Dyke. One obsidian flake was collected.

CrNV-02-264 (NSM 26Hu791) is a small site located in the alkali flat in a dry wash west of Big Creek, between CrNV-02-270 and CrNV-02-267. Four obsidian flakes and 1 chert flake were collected within a 3 M. square area.

CrNV-02-265 (NSM 26Hu792) is a small site, possibly a workshop area, located in the alkali flat with a broad wash area east of CrNV-02-267 and south of CrNV-02-264, west of Big Creek. One obsidian projectile point (Pinto?), 1 chert failed projectile point preform, 1 chert midsection, 1 chert scraper, 1 obsidian projectile point base fragment, 8 chert flakes, and 4 obsidian flakes were found within a 5 M. square area. All materials were collected.

CrNV-02-267 (NSM 26Hu784) is an extensive lithic scatter which may have functioned as a chipping station and occupational site. Located east of the dirt road from the Woodward Ranch to Dyke Hot Springs, east of the town site of Dyke, and west of Big Creek, through a series of alkali washes with associated sand dunes and sand dune ridges. Four areas of concentration were designated as localities for the site. Projectile points, obsidian and chert flakes, and other artifacts, including ground stone and 1 worked shell fragment, were observed. Diagnostic projectile points, other diagnostic artifacts, and the shell fragment were collected.

CrNV-02-270 (NSM 26Hu795) as described under Section 24 above.

CrNV-02-275 (NSM 26Hu800) is an isolated find located in a dry alkali wash east of BM 4132 on the road from Woodward Ranch to Dyke Hot Springs, west of Big Creek. One obsidian flake was collected.

CrNV-02-293 (NSM 26Hu2011) is an extensive lithic scatter which may have functioned as a chipping station and occupational site. Located from the Woodward Ranch road through the lower alluvial fans down to the alkali wash which spreads into the meadow around the spring. Materials cover the area from the springs north to about the fenceline and east along the southern fence to a sand dune south of the fence. Materials observed include ground stone, projectile points and fragments, possible scrapers, and obsidian and chert flakes. Diagnostic artifacts were collected.

CrNV-02-295a (NSM 26Hu804) is a possible chipping station and occupational site located in the same area as the historical component CrNV-02-295b. Three areas of concentration were designated as localities. The lithic scatter extends from 1¼ miles southeast of Woodward Ranch south to Dyke Hot Springs, on the lower alluvial fan. Five obsidian projectile point fragments and 1 possible scraper were collected.

CrNV-02-296 (NSM 26Hu805) is an isolated find located on the slopes of the mountains west of Dyke Hot Springs just off road running to Ellen Bee Mine. One obsidian projectile point fragment (stemmed base) was collected.

CrNV-02-297 (NSM 26Hu806) is an isolated find located on talus slopes of a ravine southwest of the road from Woodward Ranch to Dyke Hot Springs. One opalite projectile point was collected.

CrNV-02-322 (NSM 26Hu823) is a small site located on the roadbed just inside the mouth of Dyke Canyon. Two flakes were collected.

*Section 26: Lease Application N-10308 (Uppermost slopes randomly checked in high-probability areas; spot-checked in low-probability areas.)

Historical: Negative.

Prehistorical: Negative.

*Section 35: Lease Application N-10309 (Uppermost slopes randomly checked in high-probability areas; spot checked in low-probability areas.)

Historical: Negative.

Prehistorical: Positive.

CrNV-02-378 (NSM 26Hu839) is a small site which possibly functioned as a chipping station, located on the northwest side of a creek wash that runs into Cherry Creek, on the road that goes to Lone Tree Reservoir, north of the cabins. One possible exhausted obsidian core, 1 possibly modified obsidian flake, 6 chert flakes, and 2 obsidian flakes were collected.

CrNV-02-379 (NSM 26Hu840) is a small site located at the west base of a granitic outcropping on the south side of a saddle north of the cabins along Cherry Creek. Two flakes were collected.

CrNV-02-380 (NSM 26Hu841) is a small site, possibly a chipping area, located on the south base of a rock outcropping northeast of the top of the mountain with elevation 6329'. Materials extended down the slope along the base of the outcropping overlooking Dyke Canyon to the northeast. One obsidian projectile point (Cottonwood?), 1 obsidian projectile point preform, and nine obsidian flakes were collected.

T. 42 N., R. 30 E.

*Section 1: Lease Application N-10308 (Uppermost slopes randomly checked, in high probability areas; spot-checked in low-probability areas.)

Historical: Negative.

Prehistorical: Positive.

CrNV-02-321 (NSM 26Hu822) is an isolated find located north of the dirt road which runs past the gravel pits to Cherry Creek, at the base of an outcropping. One obsidian flake was collected.

CrNV-02-324 (NSM 26Hu825) is a small site located on the east side of a creek on an alluvial fan, east of the dirt road which runs southwest from Cherry Creek to the dirt road from Dyke Hot Springs. Five obsidian flakes and 1 chert flake were collected.

CrNV-02-328 (NSM 26Hu829) is a small site located in a dry wash extending from the upper alluvial slopes down to the lower alluvial slopes near the junction of the dirt road from Dyke Hot Springs and the dirt road going up Cherry Creek from the south, on the east side of the road to Cherry Creek. One obsidian projectile point fragment, 3 obsidian projectile point midsections, 4 obsidian scrapers, 2 modified obsidian flakes, 1 possible chert preform, 2 obsidian flakes, and 1 flake of unknown material found over a distance of 2/10 mile. All materials were collected.

CrNV-02-381 (NSM 26Hu842) is a small site, possibly a chipping station, located along a boulder outcropping on the south slope of a rise, west of the dirt road to Cherry Creek. One obsidian projectile point (Humboldt?), 1 obsidian projectile point fragment, and 7 obsidian flakes were collected.

CrNV-02-382 (NSM 26Hu843) is a lithic scatter, possibly a chipping station, located north of the road past the gravel pits to Cherry Creek, on a low basalt outcropping overlooking the valley. Approximately 30 obsidian flakes were observed; no collection made.

*Section 2: Lease Application N-10310 (Uppermost slopes randomly checked in high-probability areas; spot checked in low-probability areas.)

Historical: One stone cabin and two nearby small structures are located on the side of Cherry Creek and date from the 1930's (?). Not recorded.

Prehistorical: Positive.

CrNV-02-377 (NSM 26Hu838) is a lithic scatter located on a flat on the west side of the junction between Cherry Creek and another creek which flows into Cherry Creek from the west. Obsidian projectile point fragments, obsidian flakes, and chert flakes were observed. No collection made.

T. 42 N., R. 30 E. (See Figure 4)

*Section 11: Lease Application N-10307 (Uppermost slopes randomly checked in high-probability areas; spot-checked in low-probability areas.)

Historical: Negative.

Prehistoric: Positive.

CrNV-02-376 (NSM 26Hu837) is an isolated find located in a dry stream bed on upper alluvial slopes, northwest of the gravel pit. One obsidian flake was collected.

*Section 12: Lease Application N-10309

Historical: Negative.

Prehistorical: Positive.

CrNV-02-323 (NSM 26Hu824) is a lithic scatter located on a barren dry wash on a flat area above the unnamed spring, where the spring enters into a deep draw. Materials observed include 1 basalt projectile point fragment, obsidian flakes and chert flakes. No collection made.

CrNV-02-328 (NSM 26Hu829) as described for Section 1 above.

CrNV-02-329 (NSM 26Hu830) is an isolated find located in a dry stream bed in an area where dry washes begin at the foot of the alluvial fan and the edge of the alluvial flat below the shadscale zone, southeast of the road from Dyke Hot Springs. One basalt projectile point tip found isolated in the stream bed. Collected.

CrNV-02-330 (NSM 26Hu831) is a small site of isolated chipped lithic material found over a distance of 150 meters. Located along a dry stream bed running parallel to the dirt road to Dyke Hot Springs, southeast of the dirt road, in an area of large dry washes. One possibly obsidian scraper, 2 obsidian flakes, and 3 chert flakes were collected.

CrNV-02-373 (NSM 26Hu834) is a lithic scatter located along the northern rim of the unnamed spring and extending from the south-southwest end of the spring across the road and southeast of the road, from the spring southwest for a distance of $3/8 - \frac{1}{2}$ mile, and northwest of the road in the same area. Materials observed include 1 obsidian projectile point fragment, obsidian flakes, and chert flakes. No collection made.

CrNV-02-374 (NSM 26Hu374) is an isolated find located on upper alluvial slopes northwest of the unnamed spring, south of the stream running down to the spring, in an area where the slopes are characterized by outcrops of basalt. One obsidian flake was found on the side of the alluvial slope. Collected.

CrNV-02-375 (NSM 26Hu836) is an isolated find located on upper alluvial slope, southwest of the unnamed spring, in an area characterized by outcrops of basalt boulders. One obsidian projectile point base (Pinto?) was collected.

T. 42 N., R. 31 E. (See Figure 4)

*Section 6: Lease Application N-10309

Historical: Negative.

Prehistorical: Positive.

CrNV-02-299 (NSM 26Hu808) is a small site located in the flats east of Big Creek, south of NE corner monument of Section 6. One obsidian projectile point fragment, 1 utilized obsidian flake, and 10 lithic flakes were collected.

CrNV-02-300 (NSM 26Hu809) is an isolated find located in a dry stream bed where the alluvial fan spreads out into the flats, on the east side of the dirt road to Dyke Hot Springs. One obsidian flake was collected.

CrNV-02-301 (NSM 26Hu810) is a small site, possibly a workshop, located on an alluvial flat southeast of the gravel pit, in an area of small, sporadic, barren washes, west of Big Creek. One chert notched midsection, 1 obsidian projectile point tip, 1 possible obsidian core, 1 possible obsidian scraper, 2 possibly modified flakes, 1 possibly modified chert flake, 11 obsidian flakes, 3 chert flakes, and 1 quartz flake were collected within a 10-meter square area.

CrNV-02-302 (NSM 26Hu811) is a small site located in a dry stream bed and the adjacent large wash area on the alluvial flat southeast of the gravel pit, east of the dirt road, and west of Big Creek. One obsidian projectile point fragment (Elko Eared?), 1 possible chert preform, 1 possible chert scraper, 4 obsidian flakes, and 4 chert flakes were collected.

CrNV-02-303 (NSM 26Hu812) is an isolated find located in a large, dry wash in the alluvial flat, west of Big Creek, east of the dirt road. One obsidian flake was collected.

CrNV-02-304 (NSM 26Hu813) is an isolated find located in a large dry wash in the alluvial flat, east of Big Creek, east of the dirt road. One obsidian flake was collected.

CrNV-02-313 (NSM 26Hu814) is a small site located over an area of 50 yards, east of Big Creek in the flats. One obsidian flake and 2 chert flakes were collected.

CrNV-02-314 (NSM 26Hu815) is a lithic scatter located on a prominent north-south trending sand dune at the base of the lower alluvial fan where dry washes and sand dunes characterize the flats. Materials observed include a light density of obsidian flakes and 1 large basalt core. No collection made.

CrNV-02-315 (NSM 26Hu816) is an isolated find located in the transition area from alluvial fan to flat below, east of the dirt road and west of Big Creek. One obsidian flake was collected.

CrNV-02-316 (NSM 26Hu817) is a small site located on the side of a wash characterized by desert pavement surface, on the edge of the alluvial flat, east of the dirt road and west of Big Creek. One obsidian projectile point tip, 1 possible chert graver, 1 possible chert scraper, 1 obsidian flakes, 2 basalt flakes, and 20 chert flakes were found within a distance of 300 feet. All materials were collected.

CrNV-02-318 (NSM 26Hu819) is a small site located over a 50-yard area at the base of a sand dune in a large wash area, west of Big Creek. Four obsidian flakes and 1 chert flake were collected.

CrNV-02-319 (NSM 26Hu820) is an isolated find located in one of the small alkali bare spots, east of Big Creek and east of CrNV-02-318. One obsidian projectile point fragment was collected.

CrNV-02-320 (NSM 26Hu821) is a small site located over an area of 250 yards, east of Big Creek. One obsidian projectile point and 2 obsidian flakes were collected.

CrNV-02-326 (NSM 26Hu827) is a small site located on top of a sand dune with an alluvial slope surrounding, above the dirt road from Dyke Hot Springs, east of the dirt road up Cherry Creek from the south. Two obsidian flakes were found together and collected.

CrNV-02-327 (NSM 26Hu828) is a small site located on the side of a sand dune with an alluvial slope surrounding, above the dirt road from Dyke Hot Springs, east of the dirt road up Cherry Creek from the south. Two obsidian flakes were collected.

*Section 7: Lease Application N-10310

Historical: Negative.

Prehistorical: Positive.

CrNV-02-317 (NSM 26Hu818) is an extensive lithic scatter, possibly a chipping station, located in a large, dry wash area at the base of the alluvial fan with a number of sand dunes throughout the site. The scatter extends slightly into Section 6 and down through Section 7 for about $\frac{1}{2}$ mile. Most materials located west of Big Creek. Nine areas of concentration were designated as localities within the site. Materials observed included projectile point fragments, obsidian flakes, chert flakes, and possible ground stone. Materials collected included diagnostic projectile points and other diagnostic artifacts.

CrNV-02-331 (NSM 26Hu832) is an isolated find located on a dry wash in the flats, east of Big Creek. The dry wash lies between low sand dunes. One obsidian projectile point preform was collected.

CrNV-02-332 (NSM 26Hu833) is a small site located in a dry wash which is one of numerous small, sporadic dry washes marked by dessication fissures, south of the main sand dune area. One obsidian projectile point tip, 1 possible obsidian scraper, 3 obsidian flakes and 1 chalcedony flake were found within a 70-meter distance. All materials were collected.

In addition, the following sites were located in areas adjacent to, but not included in, the project area:

T. 43 N., R. 31 E., Section 19

CrNV-02-277 (NSM 26Hu802) is a small site located in a dry alkali wash south of BM 4096, and 1 mile east of the Woodward Ranch, east of Big Creek. One obsidian projectile point base and one black and red obsidian flake were collected.

T. 43 N., R. 31 E., Section 31

CrNV-02-298 (NSM 26Hu807) is an isolated find location in a dry alkali wash north of the corner monument NE corner Section 6, east of Big Creek. One obsidian flake was collected.

Archaeological Conclusions:

Because this survey was not intensive, and because those artifacts collected may not necessarily represent the actual range of types, abundance, etc. of artifacts occurring in the area, these "conclusions" are in no way definite, but are presented as information which may contribute toward solving problems and generating hypotheses for future lines of inquiry in Great Basin prehistory.

Inventory of the artifacts found over the entire area produced interesting results. (See Plates 1 and 2.) Projectile points included two possible fluted basal fragments, possible Black Rock Concave types and stemmed points, all of which may be relatively placed during the Western Pluvial Lakes Tradition in the Great Basin, at the end of the Anathermal (cf. Clewlow 1967). Humboldt, Pinto, Northern Side Notched, and Elko projectile points were all found in the area, and may be relatively placed at the beginning of the Medithermal (cf. Clewlow 1967). Rose Spring, Eastgate, and several fragments of



unidentifiable types which are small and reminiscent of this series were also found and may be relatively placed at the late prehistoric and early historic times. In addition, several projectile points were found which may be type-variations or new projectile point types. A large percentage of artifacts collected were scrapers including one possible crescent scraper. One small drill and one drill base with a possible basal flute were found. One Olivella shell with a small worked hole was collected from one of the large sites. A gaming chip (?) was also represented in the inventory. Possible ground stone and/or "cooking stones" were also present at several site areas. The remainder of the materials consisted of debitage of obsidian, chert, and other materials.

The range of projectile points would seem to indicate a long time span of occupation for the area. One possibly stratified site was located, and further investigation of this site may help establish the duration of occupation and clarify the questions of multiplicity of adaptation patterns and climatological changes. The possibly fluted projectile point fragments, the Black Rock Concave fragments, and several fragments which appear to be of a lanceolate or stemmed type would seem to support the Western Pluvial Lakes Tradition, dating from 9000 B.C. to 6000 B.C., (cf. Hester, 1973), reflecting a lacustrine adaptation with sites situated along shores of ancient lake systems and a tendency toward utilization of lacustrine resources along with hunting of mammals and avifauna. The scrapers which possibly constituted a multipurpose tool in a small tool kit may indicate a hunting lifestyle. Grinding tools may indicate gathering activities and exploitation of local resources, and may reflect a less temporary occupation. The large number of Humboldt, Pinto, Northern Side Notched, and Elko series projectile points would be evidence of occupation of this area during the "Great Basin Archaic" when lacustrine use patterns and other adaptive strategies were utilized along with arid-land resources, in the period from 5,000/6,000 B.C. to A.D. 500/900. The presence of Rose Spring, Eastgate, and other small projectile point fragments seem to indicate occupation of the area in the late prehistoric and into historic times. More comparative data is necessary to assess abundance of types of projectile points as they relate to specific time periods in order to speculate on the degree of exploitation and occupation during those periods.

The occurrence of such a wide range and long time span of projectile points (hence, occupation) would seem to be due in part to the abundant water sources of this part of the Black Rock Desert. Lake Lahontan itself must have been a major resource. Occupational evidence, along with dating of the Lake Lahontan fluctuations, would suggest that man may have entered the Black Rock Desert area toward the beginning of

the Anathermal, perhaps in the Late Seho stage when the lake created a vast, marshy situation desirable to the early inhabitants. The majority of the sites lie in the structural basin once covered by a great deal of water. All but a few lie below the highest levels of Lake Lahontan and all lie above the Late Seho level, the level most conducive to habitation. As this lake receded, one would expect that utilization of other water sources would be necessary, and the habitat would become situated around these other sources as it became necessary to rely on these instead of the open lake for water and food resources. As the desert margin increased, areas of occupation may have been oases, discontinuous distributions of small ecological associations. The occurrence of sites near the numerous springs, run-off streams, drainages, and thermal springs would seem to substantiate this expectation. It would appear that the Big Creek drainage was extensively utilized. Sites also occur in high elevations with rough slopes and no nearby water sources; these sites may reflect the exploitation of available fauna through hunting practices. In addition, these sites may reflect the exploitation of the mountains and foothills as an "oasis" as the desert basin expanded. It is also possible that the desert basin has been occupied by a lake since the dessication of Lake Lahontan; occupation of lake margins may have re-occurred. Since the area is in a basin which is not closed, and which has no playa, implications of this situation on the settlement patterns should be further studied. Further information and study of lake elevations and fluctuations is necessary for making hypotheses about the association of point types with lake levels in order to make any statements on the occurrence of datable (time-marker) projectile points with extinct, continuing, or present ground water. Additional systematic surface collections for comparative data and stratigraphic excavations for time control may contribute necessary information.

In general, the type of sites in this area reflect several possible adaptations to the environmental potential. Hunting activities may be reflected in the isolated sites found on the mountain tops and steep terrain, and may also be reflected in the large areas in the flats where lithic materials occur scattered over an area of topographic and vegetational sameness. Occupational sites are reflected in the presence of ground stone along with hunting/butchering tools and manufacturing tools, and in the presence of one possibly stratified site with some deposits over a period of time. Several "workshop" type sites were found with projectile points and manufacturing tools. Chipping stations consisting of projectile points and debitage, or solely debitage, were also found.

It is particularly interesting to compare this Dyke Hot Springs area with Clewlow's survey area and the Gerlach survey area, since they offer an expanse of the Black Rock Desert: the northeast arm at the Pine Forest Range, the middle of the desert north of Sulphur, and down to the southwest arm around Gerlach. Comparison with other survey areas in the Black Rock, though limited, may suggest patterns which are developing and/or unique responses in terms of human usage of the area.

Certain similarities appear between the results of this survey and the results of Clewlow's survey. Within both areas, sites were found which exhibit nearly the same types of projectile points and a range of points indicating a long time span of occupation. Fluted points were found in both areas, as were other typologically early artifacts. The range of points continued into the protohistoric, although no Desert Side Notched points were found in the Dyke Hot Springs area. Olivella shells were also found in each survey area. A large number of scrapers occurred at both survey areas, as did some ground stone. The majority of the sites in both surveys occurred in the structural basin once occupied by lake waters. There were also several diversities. No stratified sites were found in Clewlow's survey, while several sites with possible depth were located in the Dyke Hot Springs area survey. The Dyke area was conspicuously void of crescents, found in abundance by Clewlow, although one possible crescent scraper was found. Association of sites with springs and other water sources appears in both areas, although further assessment of the Dyke Hot Springs area is necessary before any judgment of the time periods connected with spring sites can be made. In general, however, sites in both areas were situated where run-off from hot springs was utilized.

Comparison with the Gerlach survey also produced similarities and differences. A broad range of projectile point types, again suggesting a long time span of occupation, was found in this area. The types of points found, however, differs. In the Gerlach area no fluted points were found, although one lanceolate stemmed point reminiscent of Scottsbluff points would indicate early manifestations of man in the area. One possible crescent fragment, found with a large obsidian biface, may also substantiate this idea. No Rose Spring or Eastgate points were found around Gerlach, although one Desert Side Notched and one possible Cottonwood point would suggest protohistoric occupation. No shell was found in the Gerlach area. We again find a relatively large amount of scrapers in both areas. Ground stone was evident at one Gerlach site, far less extensively than in the Dyke Hot Springs area. There are several sites with possible depth in both areas, these occurring both around hot springs and in sand dunes. We can make no



correlation at this time between the utilization of present, continuing, or extinct ground water and the time periods connected with sites. A large amount of sites do, again, occur in the structural basin once covered by water, but in the Gerlach area, several sites, having possibly the earliest manifestations of occupancy, lie on sand dunes which may at one time have been high ground forming the sides of a spillway from which water flowed out of this basin and into the area of the Smoke Creek Desert whereas the Dyke area is an open valley without a playa.

Further studies of the Black Rock Desert as a whole may contribute to answering the questions of sequence and adaptation patterns. More information concerning the environmental potential, including the precipitation and vegetational subareas, would help to explain differing human responses resulting in subsistence changes and variations. Additional comparative data on location of sites, types of sites, and materials found through future research is necessary for more concrete hypotheses concerning the area.

Again, collection from the sites in the Dyke Hot Springs and Gerlach surveys was minimal. Questions have been raised which future projects in the Black Rock Desert should contribute toward answering through on-going accumulation of derived data.

National Register Recommendations:

No National Register eligible sites were identified during this survey. However, the area encompassing T. 43 N., R. 30 E., Sections 12, 13, 24, 25, and 35; T. 42 N., R. 30 E., Sections 1, 2, 11, and 12; and T. 42 N., R. 31 E., Sections 6 and 7, may qualify as a National Register eligible district on archaeological grounds under 36 CFR 800.10 (4) pending further investigation of the sites in this area. Whether or not these sites attain National Register eligible status as a district, our main concern lies in data-recovery. Therefore, it is not necessary to delete from geothermal development the sections in which these lie, provided that the lessee's obligations in the mitigating measures as stated below, requiring avoidance if possible or salvage at minimum of the sites, are adhered to, thus ensuring data-recovery.

Mitigation Recommendations:

All isolated finds and "small sites" were collected in the field and thereby fully mitigated. No consideration will be given these properties except as part of the importance of the areas in which they lie and their contribution to the status of that area. All materials collected have been turned over to the Nevada State Museum for curation.

We recommend no deletions from geothermal development or "no surface occupancy" lease stipulations for the areas covered in this project. The lessee is still obligated under the lease to perform an intensive investigation of the area prior to surface disturbance.

The following sites have been administratively rated by the BLM as S2 properties, not of National Register significance at this time, but having potential for yielding data for scientific and educational purposes:

T. 43 N., R. 30 E., Section 25 (N-10309)

CrNV-02-267

T. 43 N., R. 30 E., Section 24 (N-11016) and Section 25 (N-10309)

CrNV-02-270

We recommend that these properties should be preserved in their present physical state or, at minimum, salvaged at the lessee's expense under lease stipulations.

The following sites have been administratively rated by the BLM as S3 properties, not of National Register significance at this time, but having potential for contributing data toward solving larger problems:

T. 43 N., R. 30 E., Section 12 (N-11016)

CrNV-02-248

T. 43 N., R. 30 E., Section 25 (N-10309)

CrNV-02-293

CrNV-02-295a and CrNV-02-295b

T. 42 N., R. 30 E., Section 1 (N-10308)

CrNV-02-382

T. 42 N., R. 30 E., Section 2 (N-10310)

CrNV-02-377

T. 42 N., R. 30 E., Section 12 (N-10309)

CrNV-02-323

CrNV-02-373

T. 42 N., R. 31 E., Section 6 (N-10309)

CrNV-02-314

T. 42 N., R. 31 E., Section 7 (N-10310)

CrNV-02-317

We recommend that these properties should be preserved in their present physical state if possible or, at a minimum, salvaged at the lessee's expense under lease stipulations.

Other properties which may be encountered will be mitigated under lease stipulations. Again, the lessee is still obligated under the lease to perform an intensive investigation of the area prior to surface disturbance.

This report contains sensitive data which, if widely known, could contribute to unauthorized collection and/or destruction of irreplaceable cultural values and should be distributed on a "need-to-know" basis only.

CR Inventory Acreage:

Study Area: 7,120 acres

Class 2 - Extensive: 6,520 acres

Class 3 - Intensive: roughly 600 acres or 9% of study area.

Time Expenditures:

Field: 28 days - 224 working hours

Office: 10 days - 80 working hours

Total: 38 days

Submitted by: Nancy Botti
Nancy Botti
Title: Archaeologist
BLM, Nevada State Office, Reno

Date: 10/4/76

Steve James
Steve James
Title: Archaeologist
BLM, Winnemucca District Office

Date: 10/4/76

Reviewed by: Robert York
Robert York
Title: BLM Cultural Management Specialist
Nevada State Office

Date: 10/6/76

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The Daily Silver State: July 29, 1906; August 6, 1906; December 29, 1906; December 31, 1906; November 11, 1907; April 9, 1908; October 23, 1909.

Humboldt Star: September 13, 1906; January 8, 1907; May 5, 1907; May 14, 1907; May 21, 1907; June 11, 1907; January 24, 1913.

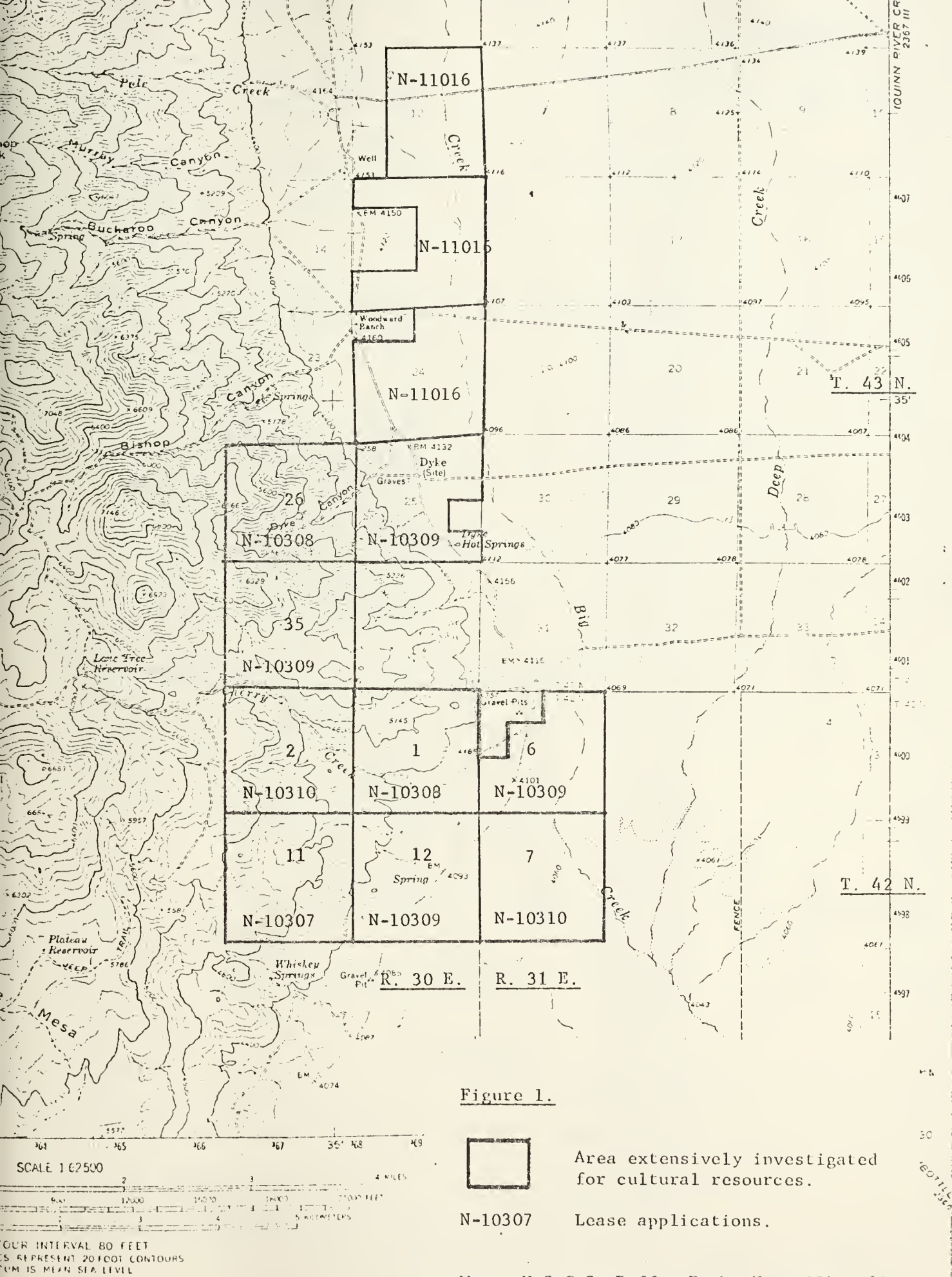
Goldfield News: November 10, 1906.

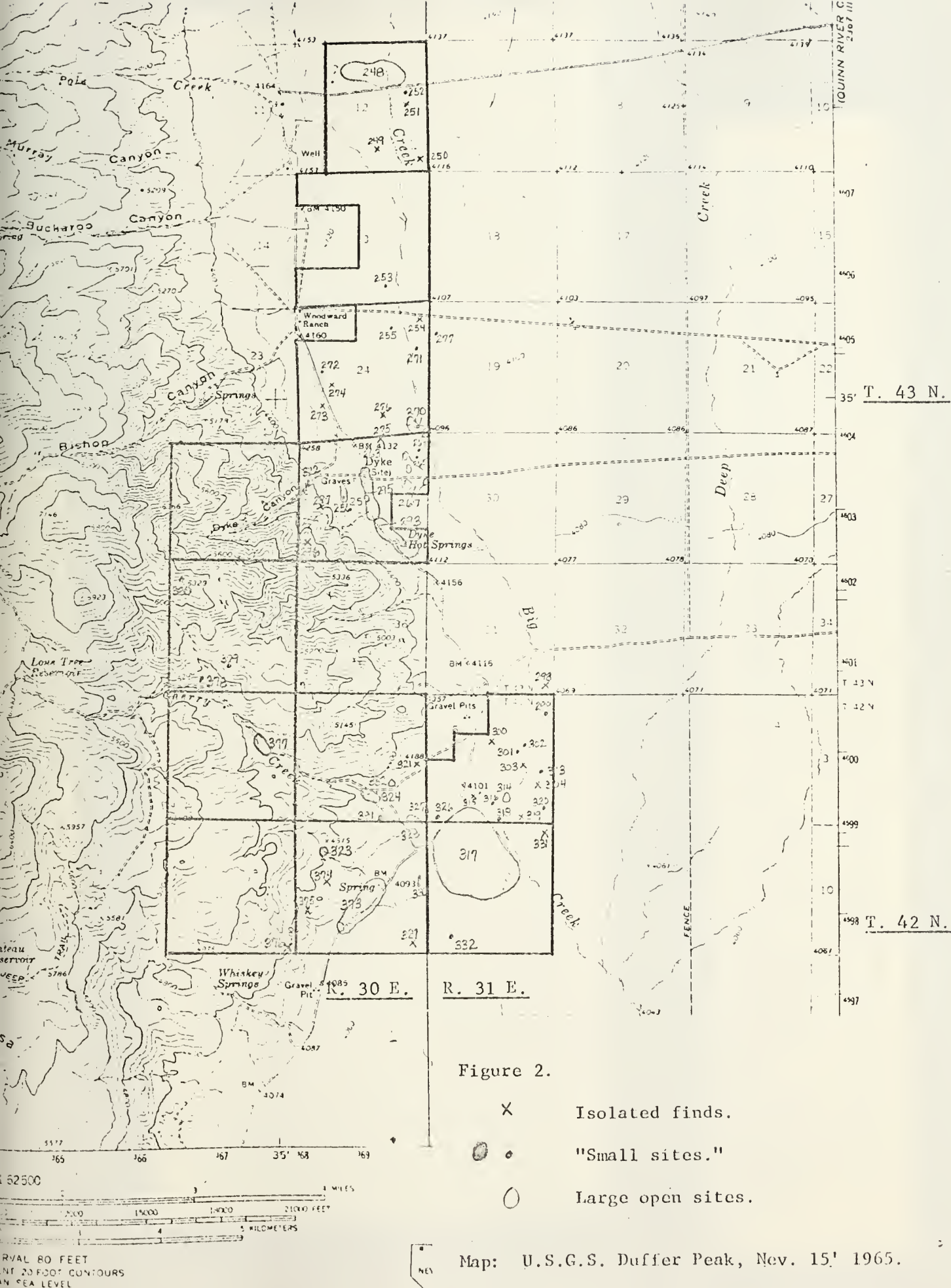
Consultations

Jack Doyle. Mine operator. Permanent residence: Roseburg, Oregon.
Seasonal residence: Dyke Canyon, Nevada. 6/25/76.

Icyl Tingley. Member of North Central Nevada Historical Society. Trailer Estates, Winnemucca. 8/9/76.

Harold Woodward. Rancher. Star Route 65, Winnemucca, Nevada. 6/22/76 and 7/16/76.





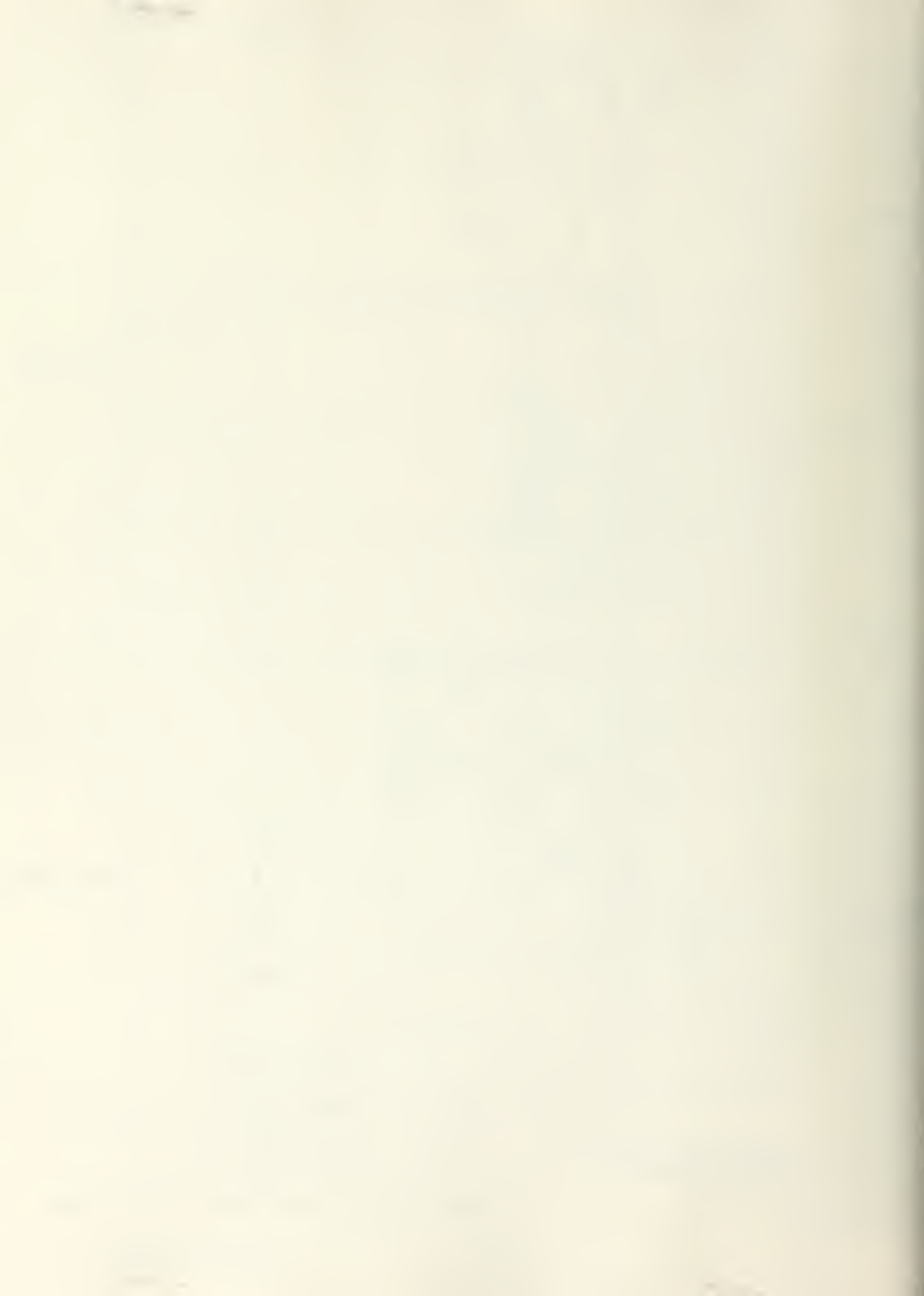


Figure 3. Panorama of project area north of Dyke Hot Springs, overlooking Pine Forest Valley. Beginning at left (north), sites shown include CrNV-02-253, CrNV-02-254, CrNV-02-255, CrNV-02-277, CrNV-02-271, CrNV-02-266, CrNV-02-272, CrNV-02-274, CrNV-02-273, CrNV-02-276, CrNV-02-263, CrNV-02-275, CrNV-02-270, CrNV-02-295, CrNV-02-267, CrNV-02-264, CrNV-02-265, and CrNV-02-293 at far right (south). Road running east through center of area shown extends from Dyke Canyon through the town site of Dyke, through CrNV-02-267, and continues east. Photo taken from the graves, vicinity of CrNV-02-256, elevation 4240', on lower piedmont slopes.

Dyke Hot Springs Area Geothermal Survey
(Nancy Botti - Summer, 1976)

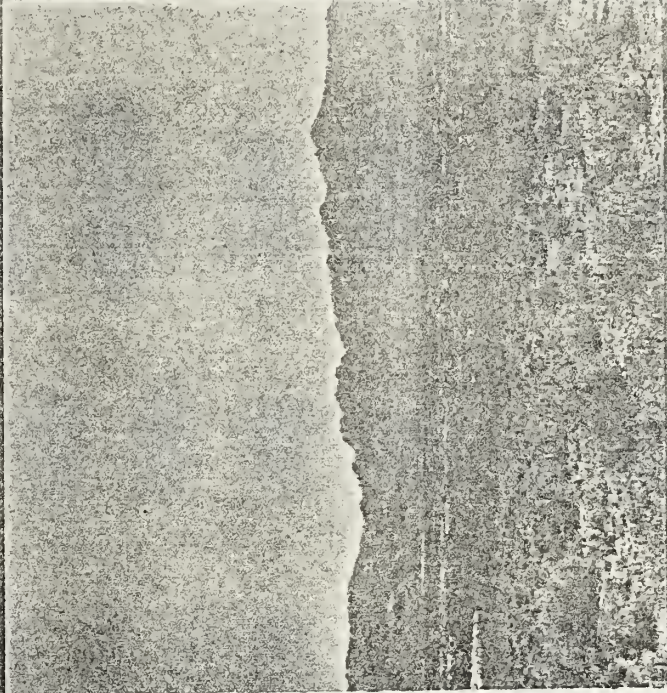


Figure 4. Panorama of project area southeast of Cherry Creek, overlooking Pine Forest Valley. Beginning at left (northeast), sites shown include CrNV-02-298, CrNV-02-299, CrNV-02-300, CrNV-02-301, CrNV-02-302, CrNV-02-321, CrNV-02-303, CrNV-02-313, CrNV-02-382, CrNV-02-304, CrNV-02-314, CrNV-02-315, CrNV-02-320, CrNV-02-316, CrNV-02-319, CrNV-02-318, CrNV-02-331, CrNV-02-317, CrNV-02-326, CrNV-02-327, CrNV-02-328, CrNV-02-332, CrNV-02-330, CrNV-02-281, CrNV-02-329, and CrNV-02-373 at far right (southwest). Photo taken from fork in the road at the mouth of the canyon from which Cherry Creek flows, elevation 4240', on lower piedmont slopes.

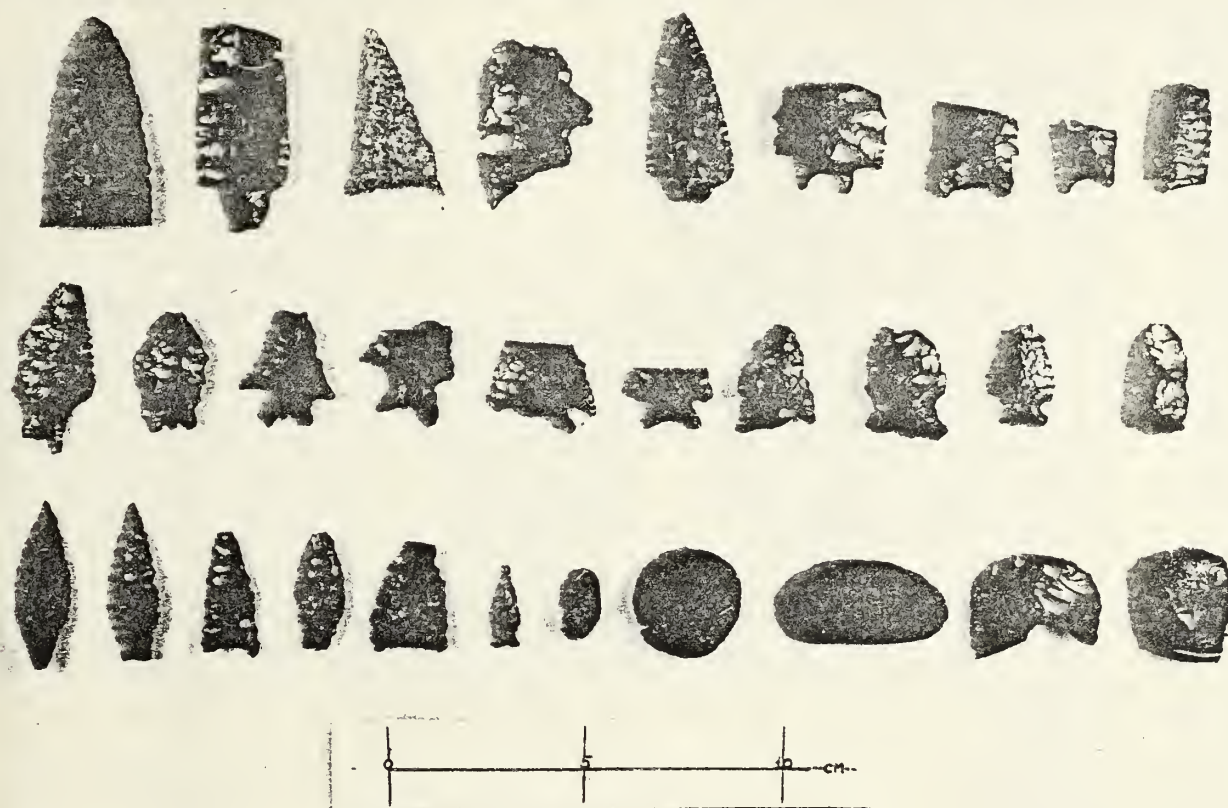


PLATE 1

Row 1: projectile points and point fragments. Left to right: CrNV-02-329 (basalt), CrNV-02-317 (black obsidian), CrNV-02-270 (grey mottled chert), CrNV-02-295 (black obsidian), CrNV-02-317 (grey obsidian), CrNV-02-317 (black obsidian), CrNV-02-270 (black obsidian), CrNV-02-293 (black obsidian), CrNV-02-310 (red/brown chert).

Row 2: projectile points and point fragments. Left to right: CrNV-02-320 (black obsidian), CrNV-02-381 (black obsidian), CrNV-02-271 (black obsidian), CrNV-02-248 (black obsidian), CrNV-02-302 (black obsidian), CrNV-02-375 (black obsidian), CrNV-02-267 (black obsidian), CrNV-02-248 (black obsidian), CrNV-02-293 (black obsidian), CrNV-02-295 (black obsidian).

Row 3: projectile points and miscellaneous artifacts. Left to right: CrNV-02-267 (black chert), CrNV-02-267 (black obsidian), CrNV-02-267 (black obsidian), CrNV-02-267 (black obsidian), CrNV-02-253 (black obsidian, drill base), CrNV-02-267 (brown chert, drill base), CrNV-02-267 (Olivella shell), CrNV-02-267 (black limestone?, gaming chip?), CrNV-02-293 (basalt, crescent scraper?), CrNV-02-267 (black obsidian), CrNV-02-293 (black obsidian).

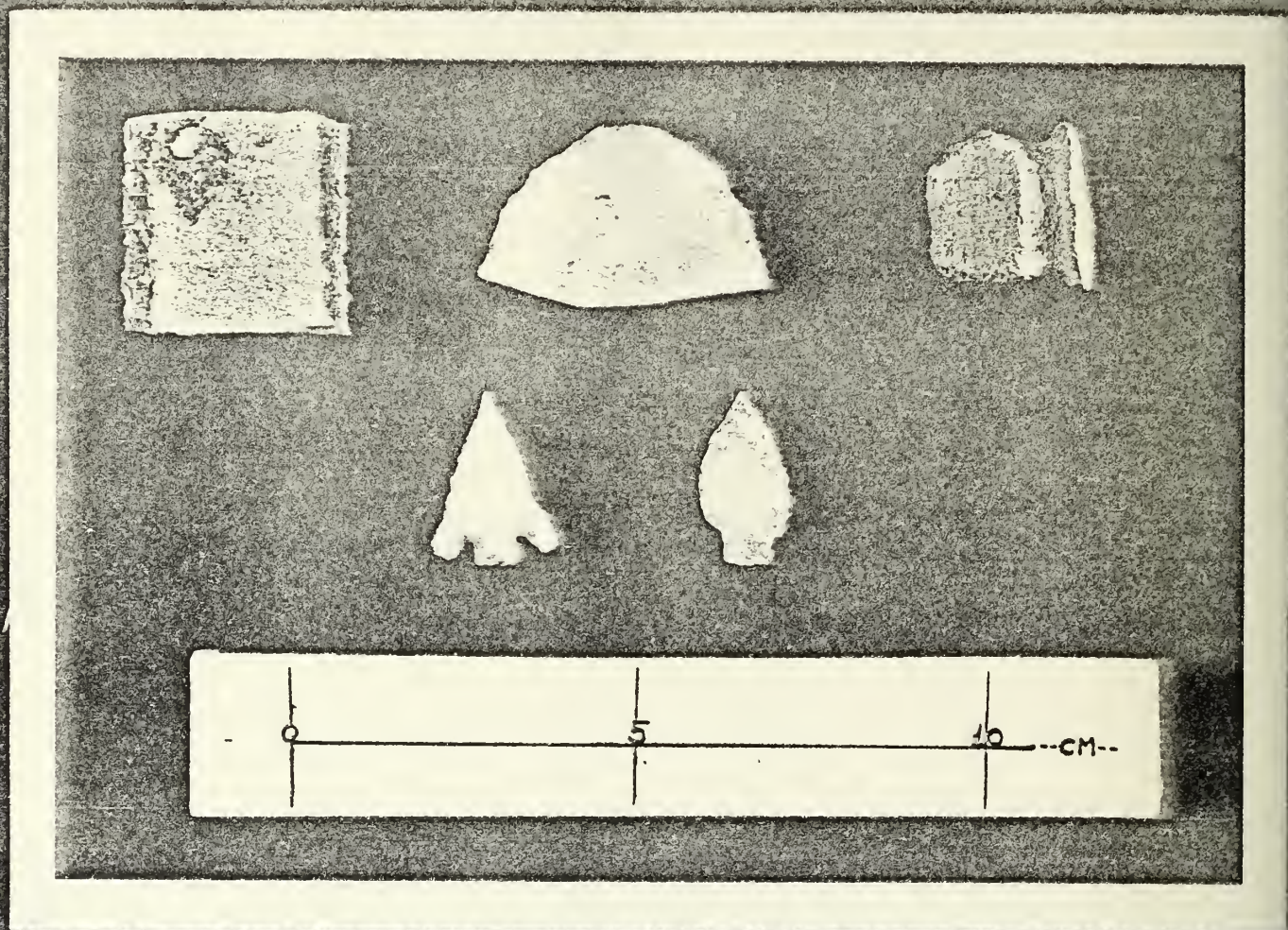


PLATE 2

Row 1: miscellaneous artifacts. Left to right: CrNV-02-267 (unidentified stone), CrNV-02-270 (white chert), CrNV-02-317 (limestone concretion).

Row 2: projectile points. Left to right: CrNV-02-267 (white/pink chert), CrNV-02-293 (white chert/quartz).

APPENDIX I

Site Reports

Copies of this report with site records are available at:

Nevada State Museum

Winnemucca District Office, Bureau of Land Management



APPENDIX II

Oil and Gas/Geothermal Lease Stipulations



Geothermal Energy Stipulations as Given in Instruction Memorandum No. NSO 75-40

The certified statement required by Section 18* of the lease form must be completed by a qualified archaeologist, acceptable to the Authorized Officer.

*Section 18 -- ANTIQUITIES AND OBJECTS OF HISTORIC VALUE -- The lessee shall immediately bring to the attention of the Authorized Officer any antiquities or other objects of historic or scientific interest, including but not limited to historic or prehistoric ruins, fossils, or artifacts discovered as a result of operations under this lease, and shall leave such discoveries intact. Failure to comply with any of the terms and conditions imposed by the Authorized Officer with regard to the preservation of antiquities may constitute a violation of the Antiquities Act (16 U.S.C. 431-433). Prior to operations, the lessee shall furnish to the Authorized Officer a certified statement that either no archaeological values exist or that they may exist on the leased lands to the best of the lessee's knowledge and belief and that they might be impaired by geothermal operations. If the lessee furnishes a statement that archaeological values may exist where the land is to be disturbed or occupied, the lessee will engage a qualified archaeologist, acceptable to the Authorized Officer, to survey and salvage, in advance of any operation, such archaeological values on the lands involved. The responsibility for the cost of the certificate, survey, and salvage will be borne by the lessee, and such salvaged property shall remain the property of the lessor or the surface owner.

Oil and Gas Stipulations as Given in Instruction Memorandum No. NSO 75-40, Change 1

To secure specific compliance with the stipulations under Section 2, paragraph (q)(4)** of the oil and gas lease form, the lessee shall, prior to operations, furnish to the Authorized Officer a certified statement that either no archaeological values exist or that they may exist on the leased lands to the best of the lessee's knowledge and belief and that they might be impaired by oil and gas operations. Such certified statement must be completed by a qualified archaeologist acceptable to the Authorized Officer.

If the lessee furnishes a statement that archaeological values may exist where the land is to be disturbed or occupied, the lessee will engage a qualified archaeologist, acceptable to the Authorized Officer, to survey and salvage, in advance of any operations, such archaeological values on the lands involved. The responsibility for the cost of the certificate, survey, and salvage will be borne by the lessee, and such salvaged property shall remain the property of the lessor or the surface owner.

**Section 2, paragraph (q) - Protection of surface, natural resources, and improvements. "The lessee agrees to take such reasonable steps as may be needed to prevent operations on the leased lands from unnecessarily...(4) destroying, damaging or removing fossils, historic or prehistoric ruins, or artifacts...."

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